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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,923	09/05/2003	Edwin T. Horton JR.	7784-000561	8630
27572	7590	02/10/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			LAM, DUNG LE	
			ART UNIT	PAPER NUMBER
			2687	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/655,923	HORTON ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Dung Lam	2687

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 11/4/05.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 17-24,26-28,31 and 32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 17-24,26-28,31 and 32 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date: _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17, 21-23, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Padovani** (US Pub. No. 2004/0196800).

3. Regarding **claim 17**, Anderson teaches a system (Fig. 1) for managing communication between a mobile platform (wireless unit 12) operating within a pre-defined geographic region and a communications station, the system comprising: a control system for managing communications within said geographic region (MSC, Fig. 1); an inherent mobile platform communications component located on said mobile platform for communicating with said control system; a plurality of antennas (24a-24f) located at spaced apart locations within or adjacent said geographic region, each of said antennas being in communication with said control system; and wherein said control system uses said location information and a direction of travel (speed, direction, position, Col. 4, lines 36-39, para. 10) of said mobile platform to determine which of said antenna stations to communicate with, and to instruct said mobile platform to switch from one of said antenna stations to another in a manner to minimize a number of changes between

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said antenna stations (In determining the handoff, mobile unit narrow down the number of best candidate that is most appropriate based on the location and direction of the mobile unit. This narrow-down candidate list will result in higher success rate in handing off to the best base station, which consequently entails a minimized number of handoff and optimal RF link, para. 10 and 13) while said mobile platform travels within said geographic region, and while maintaining an optimal RF communications link (Col. 4, lines 46-50) between said mobile platform and said ground component.

However, Anderson fails to teach that the plurality of antenna stations are specifically directional and they transmit directional beacon signals in differing directions from a plurality of locations, wherein said mobile platform using said beacons signals to establish a communication link with one of said directional antennas. In an analogous art, **Padovini** teaches the concept of using multiple directional antennas that send beacon signals (pilot signal) and the mobile unit receive these signals and select the one that has the highest C/I (see para. 68). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine Anderson's teaching of handoff system and Padovini's teaching of directional antennas to increase the system capacity and data rates as suggested by Padovani (see Abstract).

4. Regarding **claim 20**, **Anderson** and **Padovani** teach all the limitations of claim 17.

Anderson further teaches said selection is further made in consideration of a loading of at least a pair of said antennas (Col. 6, lines 19-21 and Col. 10, lines 33-36).

5. Regarding **claim 21**, **Anderson** and **Padovani** teach all the limitations of claim 17.

Anderson further teaches location information is derived from Global Positioning Satellite information and supplied to said control system by said mobile platform communications component (Col. 6, lines 43-45).

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6. Regarding **claim 22**, Anderson and Padovani teach all the limitations of claim 17.

Anderson further teaches that said control system uses information relating to a speed of travel of said mobile platform to make said selection (Col. 6, lines 48-58).

7. Regarding **claim 23**, Anderson and Padovani teach all the limitations as in claim 17. Anderson further teaches at least one of said antenna stations is used to inform said mobile platform as to which specific one of said antenna stations to communicate to switch to using (Col. 10, para. 20).

8. Regarding **claim 26**, it is a combination of claims 17, 20, 22, and 23. Therefore it is rejected for the same reasons as claims 17, 20, 22, and 23.

9. Claims **24** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Padovani** (US Pub. No. 2004/0196800) in further view of **Willhoff** (US Patent 5887262).

10. Regarding **claim 24**, Anderson and Padovani teach all the limitations of claims 7. Padovani teaches that the said directional antennas are directed away from each other (Fig. 2). However, they fail to teach each one of said antenna station further includes an omni-directional antenna. In an analogous art, **Willhoff** teaches a system that utilizes both omni-directional (non-SAS) and directional (SAS) antennas to make the system more compatible by being able to communicate with both directional and omni-directional enabled mobile units (Col. 6, lines 45-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to utilize both omni-directional and directional antenna to preserve full service capacity as suggested by Willhoff (Col. 6, lines 45-52).

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11. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.**

(EP Patent No. 1081974 A2) in view of **Padovani** (US Pub. No. 2004/0196800) further in view of **Ballai** (US Patent 2004/0023640).

12. Regarding claim 27, **Anderson** and **Padovani** teach all the limitations of claim 26.

**Anderson** further teaches communications component continuously supplies location obtained from a from Global Positioning Satellite system to said control system via said antenna stations (Col. 6, lines 43-45).

13. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Padovani** (US Pub. No. 2004/0196800) further in view of **Ballai** (US Patent 2004/0023640) in further view of **Willhoff** (US Patent 5887262).

14. Regarding claim 31, **Anderson**, **Pardovani** and **Ballai** teaches all the limitations as in claim 26. However they fail to teach said antenna stations further comprises using at least one directional antenna and one omni-directional antenna. In an analogous art, **Willhoff** teaches a system that utilizes both omni-directional (non-SAS) and directional (SAS) antennas to make the system more compatible by being able to communicate with both directional and omni-directional enabled mobile units (Col. 6, lines 45-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify **Anderson's** communication system to utilize both omni-directional and directional antenna to preserve full service capacity as suggested by **Willhoff** (Col. 6, lines 45-52).

15. Regarding claim 32, it is a method claim 26, further comprising using information pertaining to a loading of at least a pair of said antenna stations in determining which one of

said antenna stations said communications component is to be instructed to use (Col. 6, lines 19-21 and Col. 10, lines 33-36).

16. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.**

(EP Patent No. 1081974 A2) in view of **Padovani** (US Pub. No. 2004/0196800) further in view of **Ballai** (US Patent 2004/0023640) further in view of **Torre et al.** (US 6483454).

17. Regarding claim 28, Anderson teaches all the limitations of claim 6. However, Anderson fails to teach that location information is derived by said control system through multi-lateration techniques. In an analogous art, **Torre** teaches that aircraft uses multi-lateration techniques to determine location as an aid to determine the best collision avoidance maneuver. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to utilize multi-lateration technique as a more efficient method in determining the position of the mobile unit (Col. 11, lines 45-49).

18. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Anderson et al.** (EP Patent No. 1081974 A2) in view of **Padovani** (US Pub. No. 2004/0196800) further in view of **Hajimiri et al.** (US Patent 6917815).

19. Regarding claim 18, Anderson and Padovani teach all the limitations of claim 17. However, they fail to teach said mobile platform includes first and second RF antennas each operating at a different frequency. In an analogous art, Hajimiri teaches the method of two different frequencies simultaneously for redundancy purpose and thereby increases the reliability in transmissions (Col. 2, lines 30-38). Therefore, it would have been obvious to one of

ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to use two different frequencies as a redundancy technique which increases reliability in signal transmission quality.

20. Regarding **claim 19**, Anderson and Padovani teach all the limitations of claim 17. However, they fail to teach each said antenna station includes first and second antennas operating at different frequencies. In an analogous art, Hajimiri teaches the method of using two different frequencies simultaneously for redundancy purpose and for an increase of reliability in transmissions (Col. 2, lines 30-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Anderson's communication system to use two different frequencies as a redundancy technique which increases reliability in signal transmissions.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 17-24,26-28,31 and 32 filed on 11/4/05 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Lam whose telephone number is (571) 272-6497. The examiner can normally be reached on M - F 9 - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DL

1/23/2006

  
**LESTER G. KINCAID**  
**SUPERVISORY PRIMARY EXAMINER**